

**REMARKS**

Claims 1-5, 7, 8, 11-27, and 30 have been examined, and claims 6, 9, 10, 28, 29, 31, and 32 have been withdrawn from consideration. Of the examined claims, claims 1, 2, and 11 have been rejected under 35 U.S.C. § 102(e), and claims 12-15, 17, and 19-24 have been rejected under 35 U.S.C. § 103(a). Also, the Examiner has acknowledged that claims 3-5, 7, 8, 16, 25-27, and 30 contain allowable subject matter.

**I. Rejection under 35 U.S.C. § 102(e) over U.S.P. 6,239,817 to Mayer (“Mayer”)**

Claims 1, 2, and 11 have been rejected under 35 U.S.C. § 102(e) as being anticipated by Meyer.

**A. Claim 1**

Applicants submit claim 1 is patentable over Mayer. For example, claim 1 recites a recording head and a platen. The recording head has a dot formation element array that includes dot formation elements arranged in a first direction. The platen has a first hole (1) which is formed in an area opposite to a downstream portion of the dot formation element array and (2) which has a size in the first direction that is less than an entire portion of the dot formation element array. On the other hand, as shown in Figs. 4B and 5, the hole 38 opposes the entire recording head 27 and thus, does not correspond to the claimed first hole.

The differences between the structure of an illustrative, non-limiting embodiment of

claim 1 and the structure disclosed in Mayer may lead to certain advantages. For example, as described in the "Background of the Invention" section of the present application, providing a large hole that opposes the entire recording head (as in Mayer) increases the probability of a paper jam and deteriorates the print quality due to a lack of support for the recording paper opposite the recording head. (Present Application, page 2, first full paragraph).

**B. Claim 2**

Since claim 2 contains features that are similar to the features recited above in conjunction with claim 1, Applicants submit that claim 2 is patentable at least similar reasons.

**C. Claim 11**

Applicants submit that claim 11 is patentable over Mayer. For example, claim 11 states that a hole is formed locally in the area of the platen. On the other hand, as described above, the hole 38 in Mayer opposes the entire recording head 27. Therefore, the hole 38 is not formed locally in the platen 30.

**II. Rejection under 35 U.S.C. § 103(a) over Mayer and U.S.P. 6,325,489 to Endo ("Endo")**

Since claim 12 depends upon claim 11 and since Endo does not cure the deficient teachings of Mayer with respect to claim 11, Applicants submit that claim 12 is patentable over

the cited references.

### **III. Rejection under 35 U.S.C. § 103(a) over U.S.P. 5,291,277 to Suzuki (“Suzuki”) and Mayer**

Claims 13-15 and 17-24 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Suzuki in view of Meyer. As a preliminary matter, the Examiner omits claim 18 from the rejection but includes claim 18 in the detailed discussion of the rejection. Furthermore, the Office Action Summary indicates that claim 18 is rejected. Therefore, Applicant assumes that the Examiner intended to include claim 18 in this rejection.

#### **A. Claim 13**

Applicants submit that claim 13 is patentable over the combined teachings of Suzuki and Mayer. For example, claim 13 recites a platen that holds a recording medium in position opposite to a recording head. The Examiner contends that the casing 12, shown in Fig. 1 of Suzuki, corresponds to the claimed platen, but Applicants respectfully disagree.

For example, in Suzuki the print paper P is “held” during a print operation by using the paper supply rollers 4 and the paper eject rollers 5 to create tension in the paper P. (Column 4, lines 19-49, and column. 5, lines 23-34). Moreover, when the tension is created in the paper P, a gap S exists between paper P and the guide surfaces 6a of the casing 12. (Fig. 1; column 5, lines 30-34). Since a gap S is provided between the paper P and the casing 12 during a print

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operation, the casing 12 does not hold the paper P in the manner claimed.

Also, modifying the Endo device to incorporate a platen that actually holds the paper P would not have been obvious. Specifically, as noted above, Suzuki teaches a system in which the rollers 4 and 5 are expressly designed to create the gap S between the paper P and the casing 12. By creating the gap S, the paper P does not contact the guide surfaces 6 during a printing operation, and thus, the bottom surface of the paper P is not stained with ink that adheres to the guide member 6 of the casing 12. (Column 5, lines 35-53). Therefore, altering the Endo device such that a platen holds the paper P would destroy the intended purpose and function of the device and would not have been obvious.

In addition, Applicants submit that Suzuki and Mayer (alone or in combination) do not suggest the claimed first operation mode. For example, as recited in claim 13, during the first operation mode, a recording operation is performed by expanding recorded data within a record region inside the right and left sides of the recording medium.

The Examiner acknowledges that Suzuki fails to disclose the first operation mode, but maintains that column 3, lines 30-50, of Mayer suggests such feature. However, Applicants disagree that Mayer suggest such feature.

For example, as described in the reference, the Mayer printer prints in two different modes: a margin mode and a borderless mode. (column 3, lines 27-35). With respect to the margin mode, Mayer merely states that such mode is well known and that the details of the operation of the margin mode are not disclosed. Also, with respect to the borderless mode, the portion of Mayer cited by the Examiner merely states:

Considering now the borderless mode of operation in greater detail with reference to Figs. 4A-C and Fig. 5, in the borderless mode of operation, the print engine 60 causes a medium sheet, such as the medium sheet 16, to be retrieved from the input tray 13. As best seen in Fig. 6, the medium sheet 16 has outer boundary edges at 42, 44, 46 and 48 and includes a tear off portion 16A that is separable from the remainder of the medium sheet 16 by a tear off perforated line 16B. Thus, when the tear off portion 16A is separated from the sheet 16, the sheet 16 acquires a new boundary edge indicated at 16B.

As indicated above, the margin mode and the borderless mode do not suggest expanding recording data as claimed. Therefore, Mayer does not suggest the claimed first operation mode.

Also, claim 13 recites a second operation mode that expands the recorded data.

Applicants submit that Mayer does not suggest the second operation mode for reasons that are analogous to the reasons why it does not teach the first operation mode.

#### **B. Claim 14**

Since claim 14 contains features that are analogous to at least some of the features recited above in conjunction with claim 13, Applicants submit that claim 14 is patentable for reasons that are analogous to at least some of the reasons presented above. Moreover, one would not have been motivated to modify the Suzuki device to provide a platen that holds the paper P for the reasons presented above.

#### **C. Claims 15 and 17-24**

Since claims 15 and 17-24 depend upon claim 13 or 14, Applicants submit that they are patentable at least by virtue of their dependency.

**IV. Allowable subject matter**

The Examiner has objected to claims 3-5, 7, 8, 16, 25-27, and 30 as being dependent upon a rejected base claim but acknowledges that they contain allowable subject matter. Since claim 3 has been rewritten in independent form, Applicants submit that the objection to claims 3-5, 7, 8, 27, and 30 have been overcome. Since claims 16, 25, and 26 depend upon claim 13 and since the rejection of claim 13 has been overcome, Applicants submit that the objection of claims 16, 25, and 26 is likewise overcome.

**V. Rejoinder of dependent claims**

Since claim 3 is allowable and non-elected claims 6, 9, and 10 depend on claim 3, Applicants respectfully request the Examiner to rejoin claims 6, 9, and 10 to the present application and to indicate their allowance.

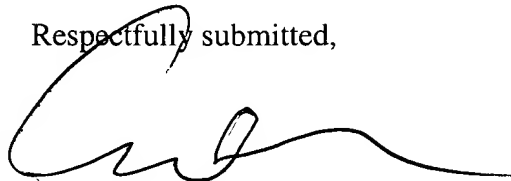
**VI. Conclusion**

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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Date: April 7, 2003

**APPENDIX**  
**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**IN THE CLAIMS:**

**Claims 31 and 32 are canceled.**

**The claims are amended as follows:**

1. (Once amended) An ink-jet recording apparatus comprising:

a recording head having a dot formation element array including a plurality of dot formation elements arranged ~~along~~ in a ~~secondary scanning~~ first direction; and

a platen for holding ~~operable to hold~~ a recording medium in position opposite to the recording head ~~during a printing operation while the recording head is caused to scan in a primary scanning direction~~, the platen having a first hole formed in an area of the platen opposite a downstream portion of the dot formation element array with respect to the first direction, and which guides ink that has been discarded outside a leading end of the recording medium when data are recorded on the recording medium without leaving a margin on the leading end of the recording medium;

wherein the first hole has a size in the first direction which is less than an entire portion of the dot formation element array

~~a recording medium feed roller disposed upstream of the recording head;~~

~~an output roller disposed downstream of the recording head; and~~

~~a first hole which is formed in an area of the platen opposite a downstream portion of the dot formation element array with respect to the secondary scanning direction and which guides~~



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~~the ink that has been discarded outside a top end of the recording medium when data are recorded on the recording medium without leaving a margin on the top end of the recording medium.~~

2. (Once amended) An ink-jet recording apparatus comprising:

a recording head having a dot formation element array including a plurality of dot formation elements arranged along in a secondary scanning first direction; and

a platen for holding operable to hold a recording medium in position opposite to the recording head during a printing operation while the recording head is caused to scan in a primary scanning direction, the platen having a first hole which is formed in an area of the platen opposite an upstream portion of the dot formation element array with respect to the first direction, and which guides ink that has been discarded outside a trailing end of the recording medium when data are recorded on the recording medium without leaving a margin on the trailing end of the recording medium,

wherein the first hole has a size in the first direction which is less than an entire portion of the dot formation element array;

~~a recording medium feed roller disposed upstream of the recording head;~~

~~an output roller disposed downstream of the recording head; and~~

~~a second hole which is formed in an area of the platen opposite an upstream portion of the dot formation element array with respect to the secondary scanning direction, the platen guiding to the second hole the ink that has been discarded outside a top end of the recording~~

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~~medium when data are recorded on the recording medium without leaving a margin on the top end of the recording medium.~~

3. (Once amended) ~~The ink-jet recording apparatus as defined in claim 1,~~ An ink-jet recording apparatus comprising:

a recording head having a dot formation element array including a plurality of dot formation elements arranged in a first direction; and

a platen for holding a recording medium in position opposite the recording head, the platen having:

a first hole formed in an area of the platen opposite a downstream portion of the dot formation element array with respect to the first direction, and which guides ink that has been discarded outside a leading end of the recording medium when data are recorded on the recording medium without leaving a margin on the leading end of the recording medium; and

~~wherein a second hole is formed in an area of the platen opposite an upstream portion of the dot formation element array with respect to the secondary scanning~~ first direction, and the ~~platen which guides to the second hole the ink that has been discarded outside a top-trailing end of the recording medium when data are recorded on the recording medium without leaving a margin on the top-trailing end of the recording medium.~~

4. (Once amended) The ink-jet recording apparatus as defined in claim 3, wherein

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the recording head is arranged so as to be able to selectively perform a standard interlaced recording operation for recording data by actuation of all the dot formation elements of the dot formation element array, and a limited interlaced recording operation for limitedly actuating a portion of the dot formation elements, through use of a dot drive control section, and the limited interlaced recording operation is performed when the ~~top~~ leading end of the recording medium is situated at the first hole and when the ~~bottom~~ trailing end of the recording medium is situated at the second hole.

5. (Once amended) The ink-jet recording apparatus as defined in claim 3, wherein, ~~in the area of the surface of the platen opposite the dot formation array, there are located flat tops~~ at least one flat portion, which is to be come into contact with the recording medium and operable to support the recording medium from below, is formed in an area to be opposite to the dot formation element array.

6. (Once amended) The ink-jet recording apparatus as defined in claim 3, wherein, ~~in a downstream position outside the area of the surface of the platen opposite the dot formation array, there are located flat tops~~ at least one flat portion, which is to be come into contact with the recording medium and operable to support the recording medium from below, is located in an area of the platen to be opposite to the downstream portion of the dot formation element array.

7. (Once amended) The ink-jet recording apparatus as defined in claim 3, wherein

an ink-absorbing material is provided within each of the first and the second holes.

8. (Once amended) The ink-jet recording apparatus as defined in claim 3, wherein a water repellent net is provided so as to cover an opening of each of the first and the second holes, and ink-absorbing material is provided in each ~~hole~~ of the first and the second holes so as to be in contact with the ~~hole~~ water repellent net.

9. (Once amended) The ink-jet recording apparatus as defined claim 3, wherein a reclosable closure is attached to ~~the~~ an opening of each of the first and the second holes, and the closure is opened when data are recorded on the recording medium without leaving a margin on ~~either~~ at least one of the top-leading or bottom-the trailing end of the recording medium, the closure being closed when data are recorded on the recording medium while leaving a margin.

10. (Once amended) The ink-jet recording apparatus as defined claim 9, wherein the closure has a pivot located below the opening of ~~corresponding hole~~ an associated one of the first or the second holes and is pivotally opened or closed by being pivoted around the pivot.

11. (Once amended) A recording method for recording data on a recording medium ~~without leaving a margin through use of an ink-jet recording apparatus, the apparatus~~ including comprising steps of:

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providing an ink-jet recording apparatus which comprises:

a recording head having a dot formation element array including a plurality of dot formation elements arranged ~~along in a secondary scanning~~first direction; and

a platen ~~which holds~~operable to hold a recording medium in position opposite the recording head ~~during a printing operation while the recording head is caused to scan in a~~  
primary scanning direction;

~~—— a recording medium feed roller disposed upstream of the recording head; and~~

~~—— an output roller disposed downstream of the recording head, wherein~~

squirting ink is squirted while the an end portion of the recording medium is situated within an area of the platen opposite to the range of the dot formation element array in the secondary scanning direction, and such that a portion of the ink is discarded into a hole locally formed in the area of the surface of the platen opposite the end portion of the recording medium situated thereat, to thereby record data on the recording medium without leaving a margin on the an edge of the recording medium.

13. (Once amended) An ink-jet recording apparatus comprising:

~~an ink-jet a recording head on which~~having a dot formation element array including a plurality of dot formation elements are arranged along in a secondary scanningfirst direction and which is reciprocally moved in a ~~primary scanning~~second direction perpendicular to the first  
direction;

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a platen ~~which is disposed opposite the recording head and holds a recording medium~~ operable to hold one of recording media having a plurality of predetermined sizes in position opposite to the recording head by supporting the recording medium from below when data are recorded, by means of the recording head, on the recording medium to be intermittently transported in the secondary scanning direction, the platen having a plurality of holes in areas to be opposite to both side ends of at least one of the recording media in the second direction; and

a control section for controlling, on the basis of recorded data, ~~intermittent transportation of the recording medium in the secondary scanning direction, reciprocal movement of the recording head in the primary scanning direction, and the squirting of ink from the recording head,~~ the control section having:

a first operation mode in which a recording operation is performed by ~~means of~~ expanding recorded data within a record region inside the ~~right and left sides~~ both side ends of the ~~employed recording medium~~ one of predetermined size recording media; and

a second operation mode in which a recording operation is performed by ~~means of~~ expanding the recorded data ~~of the same~~ within a record region outside ~~either side~~ the both side ends of the ~~employed recording medium~~ one of the same size recording media and inside ~~an each~~ outer edge of the ~~ink receiver open hole~~ associated holes in the second direction, the second operation mode being selected in a case where data is recorded on the one of recording media without leaving a margin on either side thereof; and

wherein each of the holes extends in the first direction beyond areas to be opposite to both ends of the dot formation element array

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~~ink receiver open holes which are formed in the areas of the platen corresponding to the right and left sides of one type of recording medium of predetermined size or the right and left sides of two or more types of recording media of predetermined sizes, from among the recording media to be transported over the platen in the secondary scanning direction, the holes being formed so as to extend beyond the respective right and left sides of the employed recording medium and formed to longitudinally extend beyond the range of the dot formation elements in the secondary scanning direction;~~

~~wherein in a case where data are recorded on the recording medium without leaving a margin on either side of the recording medium, the second operation mode is performed.~~

14. (Once amended) An ink-jet recording apparatus comprising:

~~an ink-jet~~ a recording head on which having a dot formation element array including a plurality of dot formation elements are arranged along in a secondary scanning first direction and which is reciprocally moved in a primary scanning second direction; and

a platen operable to hold one of recording media having a plurality of predetermined sizes in position opposite to the recording head, the platen having a plurality of holes in areas to be opposite to both side ends of at least one of the recording media in the second direction, and having which is disposed opposite the recording head, has a flat upper surface on which a plurality of protuberances protruding the same distance are formed arranged at a predetermined intervals interval in the primary scanning second direction, and holds the recording medium in position by supporting the recording medium from below through use of flat tops of the plurality

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~~of protuberances when data are recorded, by means of the recording head, on the recording medium to be intermittently transported in the secondary scanning direction;~~

wherein each of the holes extends in the first direction beyond areas to be opposite to both ends of the dot formation element array

~~a control section for controlling, on the basis of recorded data, intermittent transportation of the recording medium in the secondary scanning direction, reciprocal movement of the recording head in the primary scanning direction, and the squirting of ink from the recording head, the control section having:~~

~~—— a first operation mode in which a recording operation is performed by means of expanding recorded data within a record region inside the right and left sides of the employed recording medium of predetermined size;~~

~~—— a second operation mode in which a recording operation is performed by means of expanding the recorded data of the same within a record region outside either side of the employed recording medium of the same size and inside an outer edge of the ink receiver open hole;~~

~~—— ink receiver open holes which are formed in the flat areas of the upper surface of the platen in which the protuberances are not formed, as well as in the areas of the upper surface of the platen corresponding to the right and left sides of one type of recording medium of predetermined size or the right and left sides of two or more types of recording media of predetermined sizes, from among the recording media to be transported over the platen in the secondary scanning direction, the holes being formed so as to extend beyond the respective right~~



~~and left sides of the respective recording media and formed to longitudinally extend beyond the range of the dot formation elements in the secondary scanning direction,~~

~~wherein in a case where data are recorded on the recording medium without leaving a margin on either side of the recording medium, the second operation mode is performed.~~

15. (Once amended) The ink-jet recording apparatus as defined in claim 13, wherein the recording region for the second mode is set to be wider than ~~the~~ a width of each of the recording ~~medium~~ media in the second direction by 4.5 mm to 5.5 mm.

16. (Once amended) The ink-jet recording apparatus as defined in claim 13, wherein in both the first and second operation modes, the control section assumes, as a speed at which the recording head reciprocally travels in the ~~primary scanning~~ second direction, a single acceleration gradient at which the recording head is to shift from a stationary state to a constant-speed state and a single deceleration gradient at which the recording head is to shift from the constant-speed state to the stationary state, and a travel distance attained by the recording head of the second operation mode in the constant-speed state is longer than a travel distance attained by the recording head of the first operation mode in the constant-speed state, and travel distance in an acceleration side and travel distance in a deceleration side are substantially equal.

17. (Once amended) The ink-jet recording apparatus as defined in claim 13, wherein

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an ink-absorbing material is provided in each of the ~~ink receiver open holes~~, and the ink-absorbing material is situated within corresponding ~~ink receiver open hole~~ such that the ~~an~~ upper surface of the ~~ink absorbing material~~ thereof is located in the vicinity of the ~~each~~ opening of the ~~through hole opposite the recording head~~ holes.

18. (Once amended) The ink-jet recording apparatus as defined in claim 14, wherein an ink-absorbing material is provided in each of the ~~ink receiver open holes~~, and the ink-absorbing material is situated within corresponding ~~ink receiver open hole~~ such that the ~~an~~ upper surface of the ~~ink absorbing material~~ thereof is located in the vicinity of the ~~each first~~ opening of the ~~through hole opposite the recording head~~ holes.

19. (Once amended) The ink-jet recording apparatus as defined in claim 17, wherein a first removal stopper is provided along the ~~an~~ edge of the first opening of ~~each of the ink receiver open holes disposed opposite the recording head~~, for preventing removal of the ink-absorbing material toward the recording head.

20. (Once amended) The ink-jet recording apparatus as defined in claim 19, wherein the first removal stopper is formed into a step provided along the edge of the first opening of ~~each of the ink receiver open holes disposed opposite the recording head~~.

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21. (Once amended) The ink-jet recording apparatus as defined in claim 13, wherein each of the ~~ink receiver open holes~~ penetrates through the platen ~~from the side opposite the recording head to the other side~~ in a third direction orthogonal to the first direction and the second direction.

22. (Once amended) The ink-jet recording apparatus as defined in claim 21, wherein a second removal stoppers are stopper is provided in each of the ~~ink receiver open hole~~ holes for preventing removal of the ink-absorbing material away from the recording head.

23. (Once amended) The ink-jet recording apparatus as defined in claim 22, wherein the second removal ~~stoppers are~~ stopper is protruded from an interior surface of each of the holes so as to extend in the third direction ~~formed into raised long lines extending along the interior surface of the ink receiver open hole in the direction of penetration.~~

24. (Once amended) The ink-jet recording apparatus as defined in claim 22, wherein the second removal ~~stoppers are each~~ stopper is formed into a step provided along ~~the an~~ an edge of ~~the corresponding a second~~ opening of each of the ink receiver open hole holes opposite to the first opening disposed opposite the recording head.

25. (Once amended) The ink-jet recording apparatus as defined in claim ~~13~~ 21,

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wherein a tilt section is provided in each of the ~~ink-receiver open holes~~ so as to be angled from the third direction ~~at an angle from the recording head to the other side so as to maintain the through state of the through hole,~~ and an ink-absorbing material is laid on the tilt section.

26. (Once amended) The ink-jet recording apparatus as defined in claim ~~13~~21, wherein ~~each of the ink-receiver open holes is formed in the form of a through hole,~~ and a tilt section is provided in each of the holes so as to be angled from the third direction ~~the through hole at an angle from the recording head to the other side so as to maintain the through state of the through hole,~~ and a plurality of ribs extending in a tilting direction of the tilt section being are provided on the tilt section at intervals a predetermined interval such that ~~holes are formed in the tilting direction,~~ and top surfaces of the ribs ~~being formed so as to be~~ are located lower than the an opening of each of the through hole ~~holes~~.

27. (Once amended) The ink-jet recording apparatus as defined in claim 3, wherein:  
the platen has a plurality of third holes in areas to be opposite to both side ends of at least one of recording media having a plurality of predetermined sizes;

each of the third holes extends in the first direction beyond areas to be opposite to both ends of the dot formation element array; and

the ink-jet recording apparatus further comprising ~~comprises:~~

a control section for controlling, on the basis of recorded data, ~~intermittent~~

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~~transportation of the recording medium in the secondary scanning direction, reciprocal movement of the recording head in the primary scanning direction, and the squirting of ink from the recording head, the control section having:~~

a first operation mode in which a recording operation is performed by ~~means of expanding recorded data within a record region inside the right and left sides~~ both side ends of the ~~employed recording medium of predetermined size; and~~

a second operation mode in which a recording operation is performed by ~~means of expanding the recorded data of the same within a record region outside either side~~ both side ends of the ~~one of the recording media employed recording medium of the same size and inside an each outer edge of the corresponding ink receiver open hole~~ associated third holes in a second direction perpendicular to the first direction, the second operation mode being selected in a case where data is recorded on the one of the recording media without leaving a margin on either side thereof; and

~~ink receiver open holes which are formed in the areas of the platen corresponding to the right and left sides of one type of recording medium of predetermined size or the right and left sides of two or more types of recording media of predetermined sizes, from among the recording media to be transported over the platen in the secondary scanning direction, the holes being formed so as to extend beyond the respective right and left sides of the respective recording media and formed to longitudinally extend beyond the range of the dot formation elements in the secondary scanning direction,~~

~~wherein in a case where data are recorded on the recording medium without leaving a~~

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~~margin on either side of the recording medium, the second operation mode is performed.~~

30. (Once amended) The ink-jet recording apparatus as defined in claim 27, wherein the recording head is arranged so as to be able to selectively perform a standard interlaced recording operation for recording data by actuation of all the dot formation elements of the dot formation element array, and a limited interlaced recording operation for limitedly actuating a portion of the dot formation elements, through use of a dot drive control section, and the limited interlaced recording operation is performed when the ~~top~~leading end of the recording medium is situated at the first ~~holes~~hole and when the ~~bottom~~trailing end of the recording medium is situated at the second ~~holes~~hole.